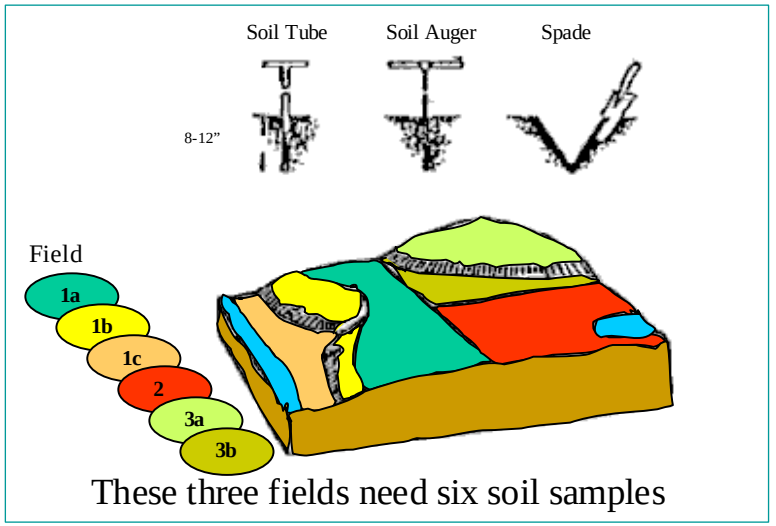
NM – 2 – How to Collect Soil Samples

Why Soil Tests are Important

Why Sample



These three fields need six soil samples

Soil testing is the key to nutrient management. Without a preplant soil test, fertilizing is a guess at best. Most soil testing is very cost effective. Many times growers put on fertilizer as "insurance" instead of testing the soil to see if fertilizer is needed. People could save as much as $100/ac by spending $20 on a soil test. NMSU has guidelines for soil sampling (Guide A-114), http://cahe.nmsu.edu/pubs/_a/a-114.html, and interpretations (Guide A-122), http://cahe.nmsu.edu/pubs/_a/a-122.html. NRCS Agronomy Technical Note 58, http://www.nm.nrcs.usda.gov/technical/tech-notes/agro/ag58.pdf , provides instructions for use of NMSU Fertilization Interpretation Software (NRCS 590 Job sheet), http://www.nm.nrcs.usda.gov/technical/tech-notes/agro.html, once the user has obtained a proper soil test. For routine analysis, request pH - saturated paste, electrical conductivity (EC): saturated paste, soil organic matter (OM): Walkley Black, nitrate nitrogen (N) (KCl or water soluble method), phosphorus (P) (Olsen-P test if pH>6.8), potassium (K) (water soluble (preferred) or ammonium acetate method), magnesium, calcium, and sodium (SAR). Many soils and crops in NM also show a need for sulfur, zinc, manganese, and other micronutrients (DTPA extractable Fe, Zn, Mn, and Cu). Those listed are part of the standard/micronutrient analysis done at the NMSU Soil, Water and Agricultural Testing Laboratory in Las Cruces; other soil testing laboratories can run the same tests, but the client needs to specify which procedures to use to enable proper nutrient recommendations for NM crops.

When and How to Take Soil Samples

1. The best time to sample is before spring fertilization or after harvest from uniform sampling areas with similar management.
2. Use any of the tools shown below to take sample. Sample to the plow depth (Usually 8-12").

Each sample should represent a uniform area. Size up the area and observe these variations:

Differences in texture (sand, silt, clay), color, slope, degree of erosion, drainage, past management (fertilization, manure application, rotation, irrigation type, etc.).

1. Take 15 to 20 subsamples from each uniform area. Mix thoroughly in a plastic container and fill a plastic bag with a pint of soil. This is the composite sample, which represents the field or area. Label each container with your name and address and the field or sample identification (ID) corresponding to the ID on the information sheet.
2. Avoid (or sample separately, if of interest) such areas as: Dead or back furrows, old straw piles, waterways, terraces, fencerows, and unusual or difficult spots.
3. Repeat the sampling procedure outlined on each uniform area you want tested.
4. Air-dry the samples before mailing. Do not use heat for drying. Wet samples will delay analyses up to one week.

Where to Send Soil Samples for Analysis:

Following NRCS 590 Nutrient Management Standard and NMSU Fertilization Interpretation software, soil test analyses shall be performed by laboratories that are accepted in the North American Proficiency Testing Program or those laboratories whose tests are accepted by the NMSU (partial list of labs below).

Partial Listing of Soil Testing Laboratories

Agricultural Testing and Research Lab
P.O. Drawer 1318
Farmington, NM 87499
505/326-2730

NMSU SWAT Testing Lab
MSC 3Q, Box 30003
Dept. of Agronomy and Horticulture
Las Cruces, NM 88003
505/646-4422

Servi-Tech Labs
P.O. Box 1397
1816 E. Wyatt Earp
Dodge City, KS 67801
308/234-2418
www.servi-techinc.com

Ward Laboratories
4007 Cherry Ave
Kearney, NE 68848-0788
402/476-2811
www.wardlab.com

Inter Ag Services, Inc.
IAS Laboratories
2515 E. University Dr.
Phoenix, AZ 85034
602/273-7248

MDS Harris
621 Rose St.
P.O. Box 80837
Lincoln, NE 68501
www.mdsharris.com

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(listing of North American Proficiency Testing participating laboratories available at http://www.naptprogram.org/pap/)

NMSU Land Grant University Soil Testing Information Sheet:
IMPORTANT

If your sample is to be tested for available zinc and iron, rusty tools will contaminate the sample with iron, and galvanized or brass containers will contaminate it with zinc. The resultant soil analysis could indicate a sufficiency of these elements when actually a deficiency exists. **Use plastic container when possible.**

ALL EQUIPMENT MUST BE ABSOLUTELY CLEAN
SOIL TESTS AVAILABLE

TEST	PURPOSE	COST PER SAMPLE
Standard: pH, total soluble salts, sodium adsorption ratio, organic matter, nitrate-nitrogen (water extractable), phosphorus (bicarb) method, and water soluble potassium.	Basic evaluation for characterizing the soil fertility status for growing crops. A fertilizer recommendation is given with sufficient information. Normally this test is sufficient unless a special problem is suspected.	$19.00
Subsoil Nitrate:	Evaluation of nitrate supply below the plow depth. Fertilizer nitrogen recommendation based on routine soil test of surface soil is adjusted if subsoil nitrate is high.	$5.00
Iron and Zinc:	Information on the micronutrients Iron and Zinc. Zinc is usually deficient in New Mexico soil. Carbonates interfere with iron and zinc uptake.	$6.00
Manganese and Copper:	Information on the micronutrients Manganese and Copper.	$6.00

Checks or Money Orders are made payable to New Mexico State University. Always verify prices by contacting the lab or visiting their website at http://swatlab.nmsu.edu/ . Click on soil for a price list. Water and plant samples can also be tested at this laboratory.

Information on additional tests (soil, water, and plant) is available from the Soil, Water, and Agricultural Testing Laboratory. Expected turn-around time is one week in lab. If a delay is expected, you will be notified by phone.

USPS Address:
New Mexico State University
SWAT LAB
Box 30003, Dept. 3Q
Agronomy and Hort Dept.
Las Cruces, New Mexico 88003

Physical Address:
New Mexico State University
SWAT LAB
2290 Knox Street, PGEL West
Las Cruces, NM 88003

Attachment 1

Sampling Date:

Name

Address

City **State** Zip

Phone Number ( )

Email address:

SOIL SAMPLE INFORMATION SHEET

NEW MEXICO STATE UNIVERSITY

SWAT LABORATORY

Received Date:

CHECK DESIRED ANALYSIS

Standard	$19.00 ☐
Subsoil Nitrate (subsoil sample)	$5.00 ☐
Iron & Zinc (w/standard test)	$6.00 ☐
Manganese & Copper (w/std)	$6.00 ☐

Verify Prices at: http://swatlab.nmsu.edu/soilist.html

Sample is for:	☐Farm ☐ Home ☐ Orchard	☐Farm ☐ Home ☐ Orchard	☐Farm ☐ Home ☐ Orchard	☐Farm ☐ Home ☐ Orchard
Lab ID Number				
Field ID				
Geographic Location (TRS, X, Y, Lat/Long)				
Acres or Square Feet				
Sampling Depth (circle one)	0-2 0-4 0-6 0-8 0-12 12-24	0-2 0-4 0-6 0-8 0-12 12-24	0-2 0-4 0-6 0-8 0-12 12-24	0-2 0-4 0-6 0-8 0-12 12-24
Last years crop				
This years crop				
Yield Goal				
Orchard or Vineyard?				
Establishment year & number per acre				
Organic Amendments	Enter Quantity of Each	Enter Quantity of Each	Enter Quantity of Each	Enter Quantity of Each
Solids				
Liquids				
Irrigation System	☐Drip ☐ Flood ☐ Sprinkler	☐Drip ☐ Flood ☐ Sprinkler	☐Drip ☐ Flood ☐ Sprinkler	☐Drip ☐ Flood ☐ Sprinkler
Depth to Groundwater	☐<6’ ☐ 6-12’ ☐ >12’	☐<6’ ☐ 6-12’ ☐ >12’	☐<6’ ☐ 6-12’ ☐ >12’	☐<6’ ☐ 6-12’ ☐ >12’
Water Nitrate-N Credit	mg/l (ppm)	mg/l (ppm)	mg/l (ppm)	mg/l (ppm)
Contact Info for Person taking sample:				
COMMENTS:				

Please remove any rocks from the sample. Submit a minimum of 2 cups of soil that has been air-dried. Avoid using rusty tools or containers.